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CENSUS CITIES EXPERIMENT IN URBAN CHANGE DETECTION

James R. Wray  
Geographic Applications Program  
U.S. Geological Survey  
Washington, D.C. 20242

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Type I Progress Report for Period 1 July 1972 - 31 August 1972

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Type I Progress Report

ERTS-1

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- a. Census Cities Experiment in Urban Change Detection. (ERTS-A  
Proposal SR-273)

b. IN-084

- c. Statement and explanation of any impedance:

There is a complete lack of data in any form. The work statement of ERTS Experiment 273, as it appears in the Memorandum of Understanding between NASA and USGS, is based on the initial proposal which was subsequently revised. The revised work statement omits certain tasks in keeping with the reduced budget and suggested time frame. Draft of a recommended amendment is in preparation.

- d. Accomplishments during the reporting period and those planned for the next period.

Pursue acquisition of reproduction of 1972 aircraft ERTS underflight photography which has already been flown, plus acquisition of aircraft ERTS underflight photography for additional urban test sites. This photography is essential for the change detection aspect of the experiment as well as for the evaluation of the ERTS imagery itself. Pursue acquisition of ERTS imagery over urban test sites. Meanwhile, analyses of 1970 urban land use from 1970 census contemporaneous aircraft photography is progressing. Land use maps, mosaics, and census overlays for the two largest urban test sites are nearing publication readiness. Area analyses are underway for San Francisco and Washington. The principal investigator will participate in ERTS applications meetings to be held by the American

Society of Mechanical Engineers at Anaheim, September 12 and 13, at NASA Goddard Space Flight Center, Greenbelt, September 29, and at the Univ. of Michigan Eighth Symposium on Remote Sensing of the Environment, Ann Arbor, October 2-6.

e. Scientific results and practical applications:

Oral presentations listed under (f.) include mention of likely applications of comparative urban area analyses using remote sensors aboard aircraft. Some applications also apply to imagery acquired from satellite platforms. The applications are listed in the author's report published by NASA during the reporting period:

"The Census Cities Project: A Status Report for 1971," by James R.

Wray, Fourth Annual Earth Resources Program Review, v. III,

(pp. 73-76 and 77), NASA Manned Spacecraft Center, Houston, Texas, January 17-21, 1972. No analyses of cost benefits have been undertaken. (Category 2I)

f. Published reports or talks:

"The Census Cities Project: A Status Report for 1971," by James R.

Wray, Fourth Annual Earth Resources Program Review, v. III, (pp. 73-76,

and 77), NASA Manned Spacecraft Center, Houston, Texas, January 17-21,

1972. This paper also was presented at the 22nd International

Geographical Congress, Section XIII, August 12, Montreal, Canada.

Mr. Wray also helped to teach two Remote Sensing Workshops held at Montreal, August 11 and 14 at which about 100 persons were in attendance.

"Cartographic Aspects of an Operational System for Detecting

Urban Change by Remote Sensing," by James R. Wray, Sixth Interna-

tional Cartographic Association Conference, Technical Session on

Urban Cartography, Ottawa, Canada. (Reprint available)

In addition, Wray participated in the News Media ERTS Briefing held at NASA Headquarters on July 12. Three USGS staff members, James Feng, Richard Ellefsen, and Duilio Peruzzi, attended the ERTS-1 launch and scientific briefing at Lompoc on July 23, and Wray attended a similar briefing at Goddard. Profs. Ellefsen and Peruzzi reported on aspects of the Census Cities analysis of the San Francisco test site at the 22nd International Geographical Congress, Section XIII, Remote Sensing, August 12, Montreal, Canada. Also at the Montreal meetings, Wray exhibited ERTS-1 MSS images of Monterey and Dallas--the first to be seen by most of the Congress attendees. Wray also wrote a one-page account of the ERTS-1 for the daily IGU Congress newspaper distributed to 2800 attendees. Instructions for ordering ERTS imagery from the EROS Data Center at Sioux Falls were included.

g. Recommendations for improvement:

Recommend (1) collateral research in automatic pattern recognition of urban land use and land use change; (2) preparation of procedural manual for producing comparative urban analyses from high altitude photography, and (3) development of urban spatial growth model from comparative urban land use studies produced by this experiment. Proposals for these efforts have been submitted to the EROS Program Manager.

h. A listing of any changes in Standing Order Forms:

Request for MSS data to support this investigation due to the loss of RBV data. Attached is the original request for data showing the investigator's areas of interest and desired coverage from RBV/MSS. Color additive composites would greatly enhance interpretation and give the most benefit of data.